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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/701,885 | 11/04/2003 | Melissa D. Boyd | 200314101 | 6722 |

22879 7590 03/28/2007

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

| EXAMINER | |
|---|---|
| TENTONI, LEO B | |
| **ART UNIT** | **PAPER NUMBER** |
| 1732 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|---|---|---|
| 3 MONTHS | 03/28/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/701,885 | BOYD ET AL. | |
| | Examiner | Art Unit | |
| | Leo B. Tentoni | 1732 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *18 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-9,11-13,15,17-30,68 and 71-82* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9,11-13,15,17-30,68,71-79,81 and 82* is/are rejected.

7)☒ Claim(s) *7, 8 and 80* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 January 2007 has been entered.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-6, 9, 11, 15 and 17-29 are rejected under 35 U.S.C. 103(a) as being obvious over Patel et al (U.S. Patent Application Publication 2004/0145088 A1) in combination with either Kramer et al (U.S. Patent 7,120,512 B2)(Kramer '512) or Kramer et al (U.S. Patent Application Publication 2005/0012247 A1)(Kramer '247).

The applied reference has a common assignee and/or inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under

37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2). Patel et al (see the entire document, in particular, paragraphs [0009], [0011], [0019], [0020], [0030], [0032], [0037], [0064] and [0072]) teaches a process for solid freeform fabrication of a three-dimensional object as claimed, except Patel et al does not explicitly teach the aspect of applying ultrasonic energy, which is taught by Kramer '512 (see the entire document, in particular, col. 4, lines 61-65) and Kramer '247 (see the entire document, in particular, paragraph [0022]) and such would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of Patel et al in view of either Kramer '512 or Kramer '247 principally in order to facilitate dispersion of the initiator and phase-change material.

5. Claims 12, 13 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al (U.S. Patent Application

Publication 2004/0145088 A1) in combination with either Kramer et al (U.S. Patent 7,120,512 B2)(Kramer '512) or Kramer et al (U.S. Patent Application Publication 2005/0012247 A1)(Kramer '247) as applied to claims 1-6, 9, 11, 15 and 17-29 above, and further in view of Dirscherl (U.S. Patent Application Publication 2004/0099983 A1).

Dirscherl (see the entire document, in particular, paragraphs [0027], [0028], [0058], [0059], [0063] and [0073]) teaches a process of solid freeform fabrication of a three-dimensional object including the use of thermal energy to heat solid phase change material, and such would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of Patel et al in view of Dirscherl principally in order to remove material (e.g., support material) which is not required for the final product.

6. Claims 68 and 71-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al (U.S. Patent Application Publication 2004/0145088 A1) in combination with Dirscherl (U.S. Patent Application Publication 2004/0099983 A1).

Patel et al (see the entire document, in particular, paragraphs [0009], [0011], [0019], [0020], [0030], [0032], [0037], [0064] and [0072]) teaches a process for solid freeform fabrication of a three-dimensional object as claimed, except

Patel et al does not explicitly teach the aspect of liquefying phase change material, which is taught by Dirscherl (see the entire document, in particular, paragraphs [0027], [0028], [0058], [0059], [0063] and [0073]) and such would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of Patel et al in view of Dirscherl principally in order to remove material (e.g., support material) which is not required for the final product.

7. Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al (U.S. Patent Application Publication 2004/0145088 A1).

Patel et al (see the entire document, in particular, paragraphs [0009], [0011], [0019], [0020], [0030], [0032], [0037], [0064] and [0072]) teaches a process for solid freeform fabrication of a three-dimensional object as claimed, except Patel et al does not explicitly teach the aspect of performing the process for the first formed layer, which would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of Patel et al principally because Patel et al teaches first dispensing a UV initiator on a previously-deposited material layer.

8. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al (U.S. Patent Application

Publication 2004/0145088 A1) as applied to claim 81 above, and further in view of either Kramer et al (U.S. Patent 7,120,512 B2)(Kramer '512) or Kramer et al (U.S. Patent Application Publication 2005/0012247 A1)(Kramer '247).

Kramer '512 (see the entire document, in particular, col. 4, lines 61-65) and Kramer '247 (see the entire document, in particular, paragraph [0022]) teach a process for solid freeform fabrication of a three-dimensional object including the aspect of applying ultrasonic energy, and such would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of Patel et al in view of either Kramer '512 or Kramer '247 principally in order to facilitate dispersion of the initiator and phase-change material.

***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-6, 9, 11, 15 and 17-29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 5 and 16 of U.S. Patent No. 7,120,512 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because curing with ultraviolet radiation would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of claims 1, 4, 5 and 16 of U.S. Patent 7,120,512 B2 principally because these claims recite an ultraviolet-curable resin.

11. Claims 12, 13 and 30 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 5 and 16 of U.S. Patent No. 7,120,512 B2 in view of Dirscherl (U.S. Patent Application Publication 2004/0099983 A1). Dirscherl (see the entire document, in particular, paragraphs [0027], [0028], [0058], [0059], [0063] and [0073]) teaches a process of solid freeform

fabrication of a three-dimensional object including the use of thermal energy to heat solid phase change material, and such would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of claims 1, 4, 5 and 16 of U.S. Patent 7,120,512 B2 in view of Dirscherl principally in order to remove material (e.g., support material) which is not required for the final product .

12. Claims 1-6, 9, 11, 15, 17-29, 81 and 82 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16-35 of copending Application No. 11/345,479. Although the conflicting claims are not identical, they are not patentably distinct from each other because curing with ultraviolet radiation would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of claims 16-35 of Application No. 11/345,479 principally because these claims recite a radiation initiator and ultraviolet is a type of radiation. Dispensing for each layer would have been obvious to one of ordinary skill in the art at the time the invention was made in the instant process principally because the instant claims (in particular, claim 20) recite dispensing an initiator before dispensing build material.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Claims 12, 13 and 30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16-35 of copending Application No. 11/345,479 in view of Dirscherl (U.S. Patent Application 2004/0099983 A1). Dirscherl (see the entire document, in particular, paragraphs [0027], [0028], [0058], [0059], [0063] and [0073]) teaches a process of solid freeform fabrication of a three-dimensional object including the use of thermal energy to heat solid phase change material, and such would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of claims 16-35 of Application No. 11/345,479 in view of Dirscherl principally in order to remove material (e.g., support material) which is not required for the final product.

This is a provisional obviousness-type double patenting rejection.

***Allowable Subject Matter***

14. Claims 7, 8 and 80 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

15. Applicant's arguments with respect to claims 1-9, 11-13, 15, 17-30, 68 and 71-82 have been considered but are moot in view of the new ground(s) of rejection.

16. With respect to claims 2, 26 and 72, Patel et al teaches these limitations because Patel et al teaches forming a three-dimensional object layer-by-layer (i.e., ink-jetting a UV initiator (on a previously deposited phase change material) and then depositing a phase change material).

17. With respect to claim 17, see paragraph [0072] of Patel et al.

18. With respect to claims 20 and 21, see paragraph [0019] of Patel et al.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leo B. Tentoni whose telephone number is (571) 272-1209. The examiner can normally be reached on Monday - Friday (6:30 A.M. - 3:00 P.M.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson

can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leo B. Tentoni

Leo B. Tentoni
Primary Examiner
Art Unit 1732

lbt